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ABSTRACT

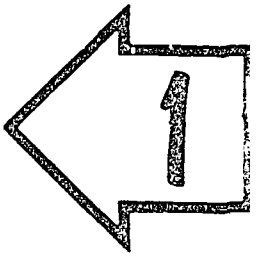
This teacher's guide grew out of an environmental education project involving personnel from the Ohio State School for the Deaf, the Worthington (Ohio) Outdoor Education Department, and teachers and pupils in one of the Worthington elementary schools. The guide is divided into four parts: Background Information, Strategies (for involving students in studying their community), Sample Student Workbook ("What's in My Own Backyard?"), and Additional Readings (on simulations and games). (PEB)

a teacher's guide to studying the local community through models, games & simulation.

by:

James M. Heilman
John Dean Freund

BACKGROUND INFORMATION



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During the 1972-73 school year the State Department of Education offered a series of sixteen environmental education workshops throughout the State of Ohio. The teaching personnel for those workshops included Jim Heilman, of the Ohio State School for the Deaf. One of Jim's areas of responsibility was a session on the application of games and simulations as a teaching technique. His session was always well received. As a result of the environmental workshops, Jim was contacted about conducting a pilot program in one of the Worthington elementary schools.

Early in the second semester of the school year, preliminary contact was made with the fifth grade team at Evening Street Elementary School. The team, which was comprised of Linda Foster, Debbie Moon, and Margaret Parks, expressed an interest in the pilot program. With the encouragement of Paul Zenisek, the building principal, detailed planning for the five session pilot program began. After an orientation session and a schedule session, student materials were prepared through the Outdoor Education Department. The student materials, (a workbook), as well as other materials about simulation techniques and community surveys are included in this teachers' manual. This teaching technique and the accompanying student materials and activities relate very well with the Metropolitan Environmental Education Resources Study field trip observation sheets and the unit entitled "Critical Thinking & Decision-making Today." Since the MEERS materials were being used in some of the fifth grades, and since both sets of activities are interrelated - the simulation activities were introduced at the fifth grade level.

Gaming and simulation offers many advantages to the classroom teacher. The primary advantage being - that the real world is scaled down to a manageable, classroom-sized unit. For this, and other reasons a simulation was developed and utilized at the Ohio State University, School of Natural Resources. Students enrolled in an environmental management course created a community model in a large sandbox. They used such common items as - balsa wood, cardboard, string, glue, and styrofoam. They included both man made and natural features of the community. After the model was completed the students were able to manipulate the elements (pieces) and were thus able to visualize more easily man's impact on the environment.

A similar study was designed and conducted at the Evening Street Elementary School in Worthington. The objectives were - (1), to see if elementary students had a sufficient background to conduct a community survey and then build a model of the community; and (2), to observe how students at this grade level responded to this teaching technique. Similar materials were used by the elementary students in the construction of their community model.

Both groups, (the college students and the elementary students), were equally creative during the model building process. Obviously, the college students had a more varied background in terms of factual information and experience. However, the elementary students were just as enthusiastic as the college students in their response to this teaching technique. As a result both groups substantially benefitted from this experience, and undoubtedly have a greater awareness of the environment in their community.

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GAMING AND SIMULATION

The use of games and simulations has grown from its genesis in war gaming to applications in several fields including management training, economic modeling, political and international studies, sociology, psychology and education. The application in the education field is relatively recent. Its use in the United States has been seen within the past ten years.

In the literature, the terms "simulation," "game" and "simulation game" are frequently used interchangeably. This is often a source of disagreement. Some people insist upon precise definitions while others use the terms interchangeably.

For the purposes of this booklet the following definitions are used:

Simulation - a model or representation of an actual system.

Game - an activity among two or more people to achieve specified goals. The activity is limited by rules which specify the range and nature of legitimate behavior by the players and also determine the win criteria.

Simulation Game - a game which focuses the interaction of the players on the use of a particular model.

Educational Merit and Advantages

1. Students can learn to anticipate and deal with situations before they encounter them in real life, and because it is not real life the students can get immediate feedback about the consequences of their actions, re-evaluate, and try alternative courses of actions.
2. Simulations aid visibility by making certain kinds of phenomena more accessible for observation and measurement.
3. A game or simulation compresses the time and space of real-life situations into the classroom and class period.
4. The method is suited to teaching process, particularly the decision-making process.
5. Students tend to perceive them as more relevant and thus become more motivated to participate.

Disadvantages

1. Simulations and games may oversimplify the real situation.
2. Students may focus on the game element.
3. Simulations and games are time consuming.
4. In many cases, simulations fail to provide empirically devised feedback.
5. Simulations require teacher training for effective use.

OTHER ENVIRONMENTAL SIMULATIONS AND GAMES

Man In His Environment
Two-Part Kit
from local Cocoa Cola distributor
free

1st - Make Your Own World - Whole class, grades 3-12 - a simulation where children represent farmers, jobless workers, real estate developers, air, forest, deer, etc. Discuss then vote on proposals, like an industrial park or new highway; the interrelated effect of these actions is then seen on farmers, deer, etc. (Excellent - Easy)

2nd - Rescue in Space - Whole class, grades 3-12 - a simulation where children divide into two groups, astronauts in two spaceships, plus ground-controllers responsible for air, water, food, and living space; after one space-craft breaks down on Mars, challenge back to Earth in the closed ecological system of a single spaceship (our Earth itself is a closed ecological system) (Very Good)

The Redwood Controversy
Houghton-Mifflin
$7.50
- Grades 5-12, 12-30 students as senators and witnesses debate proposals for a Redwood National park; ecological and financial factors involved in conservation efforts are brought out along with participation politics.

Ecopolis
Interact
Box 262
Lakeside, California
92040
$10.00
- Small group or whole class, grades 5-9 - First, players trace history through animals, Indians, and settlers trying to survive; Second, survivors discuss and decide on future of country park and population control.

Balance
Interact
$10.00
- Whole class, senior high much like Ecopolis, only more advanced.

Foxes and Rabbit
from Ecol. Kit 3
Predator - Prey ($6.00)
Urban Systems
- Small group, grades 3-8 - players toss box (weighted square) on rabbits (small squares) to simulate interdependent changes in population size of a predator and a prey - (Easy)

The Pollution Game
Houghton-Mifflin
110 Tremont Street
Boston, Mass.
02107
$9.00

- 2-5 people, grades 2-12 - students become businessmen who have to use their bargaining skills to keep air and water pollution levels below lethal limits without going broke; profit motive conflicts with other human values as students try to agree on proposals to improve environmental quality. (Very good - Easy)

"Dirty Water"
Urban Systems
1033 Massachusetts Avenue
Cambridge, Mass.
02138
$10.00
(also available locally)

- 3-5 people, grades 2-12 - water pollution game where students meet the problems of industrial wastes, nuclear power plants, and upstream pollution in "Fight For Clean Water." (Good - Easy)

"Smog"
Urban Systems
$10.00
(also available locally)

- 3-5 people, grades 4-12 - (possible lower) - air pollution game that lets player fight business interests, public indifference, and federal finding policies to bring back clean air.

"Ecology"
Urban Systems
$10.00

- 3-5 people, grades 4-12 - game of man and nature to build a better world by leading a population safely through the conflict between man's inventive genius and his environment.

"Population"
Urban Systems
$10.00

- 3-5 people, grades 6-12 - game of man and society that lets students face and solve the crisis of overpopulation in a rapidly developing country.

The Planet Management Game
Houghton-Mifflin
$12.00

- 2-5 people, grades 5-12 - put players in control of an imaginary planet with a population explosion and a pollution problem; cardboard computer helps decision making.

Extinction
Sinauer, Assoc.
Stanford, Conn.
$10.00

- Small group - each player represents a species trying to not become extinct.

Eco-Cycles
from No Time to Waste Kit ($7.50)
Continental Can Corp.
633 Third Avenue
N.Y., N.Y. 10017

- Small group, grades 3-5 - running style card game involving the building of chains of decomposer, resource, plant, herbivore and carnivore cards (also pollution cards).

Pollution Solutions
from Recycling Resources ($12.50)
Continental Can Corp.

- 7-28, Grades 7-9 - players are mayors and company executives (Ratio 1:7) compete to make most money and not pollute (and get sick); player can change game rules by voting.

ORIENTATION IN THE SCHOOL COMMUNITY: OBJECTIVES

by: Dr. R. E. Roth, Ohio State University

For the urban child to: Become curious about his community.
Place himself in the community.
Discover the components of the school-community.
Become motivated to school-community problems.

I. Motivation

A. Display pictures of the school-community.

1. For example: Corners of buildings, pavement, billboards, trees, homes, doors, signs, trash cans, etc.
2. Discussion of pictures: What is it? Where is it?

B. Display enlarged street map of area in classroom.

1. Help each child locate his home on the map. (Use colored stickers, dots, or "flags").
2. Make and give copies of completed map to each child.

II. Plan walk through the community.

A. Have student plan and mark route on their maps.

B. List suggestions of things to watch for and to record on map.

III. Discovery

A. Take walk following the route on the map.

B. Record information on map that was observed on walk.

C. Transfer information to large classroom map.

D. Have the students take pictures of things they like and dislike on the walk.

IV. Follow-up

A. Discussion

1. What things did you discover that you didn't know were in your community? What areas had all children been to before? Where had some children never been before?
2. Identify community areas (possibly color code on map):
Residential - Commercial - Parks - Industrial
"Kid's World" - "Adult's World"

3. If cameras were used, you can arrange a display of the pictures.
   a. Like a string map.
   b. Contrast them: Old places - new places; neat places - messy places; safe places - dangerous places.
   c. Group them: Places people play; places people live; places people work; etc.
4. What parts of your community do you like? Why?
5. How is your community like and unlike a natural community?
6. What problems do you see in your community?

B. Application - "Where would you go ____?" Game

1. Make a list of questions and write them on separate cards. Examples: Where would you go to buy some ice cream? Where could you go to play baseball? Where could you find a rat?
2. Have the child remove a card from a box and read the question. Then show on the map where he would go and trace how to get there. Other children could suggest alternate routes.
3. Show the slides of community asking where they were taken and why.
4. It would be interesting to ask a question requiring something that is not in the community. This could lead to discussion of what things are still needed in their environment or what things they must obtain from other communities.

DEVELOPING A COMMUNITY PROFILE

by: Dr. R. E. Roth, Ohio State University

I. Decide upon area to be studied. Mark off the boundaries.

II. Decide what information the students want to find out about their community.

III. Design survey sheets and make copies for students.

- A. Observational Survey
- B. Interview - Questionnaire Survey

IV. Decide which structures in each block will be surveyed.

V. If using an interview - questionnaire survey, role-play the entire procedure with classmates before starting out.

VI. Make appointments for interviews, if necessary.

VII. Collect data.

VIII. Summarize data.

- A. Tabulate data
- B. Make histograms
- C. Make other graphs

IX. Interpret data - draw conclusions about your community.

SAMPLE INVESTIGATION

from: The Environmental Education Program File,
Ohio State Department of Education

I. QUESTIONS FOR INVESTIGATION

A. Population

1. How many people live here?
2. What are the geographical boundaries of this community?
3. How much area does it cover?
4. How long and from where did the residents come from?
5. What do they do?
6. How many single dwellings are there? multiple dwellings?

B. Businesses

1. What kinds of businesses are there?
2. How many different kinds are there?
3. Are some of these represented excessively? insufficiently represented?
4. Are they located strategically throughout the community?
5. Are there signs?
6. How many in a block?
7. Litter: Approximate number of pieces/block - kinds - location?
8. Are there factories?
9. Are they noisy?
10. Are they polluting?
11. Sanitation: Is refuse overflowing containers?

C. Schools

1. How many schools are there here?
2. What are the student enrollments in each?
3. What percent of the total student body of all schools are represented in each kind of school?
4. What percent of the population in this community are school age children?
5. How many teachers work in the schools?
6. What is the ratio of students to teachers?
7. Do the children like school?

D. Traffic Flow

1. What are the main streets and avenues in your community?
2. What are the total number of streets in your community?
3. How many cars and buses travel through your community?
4. Between what set of hours of the day and evening does the largest/smallest traffic flow?

E. Housing

1. How many dwellings are there in a block of the community?
2. How many dwellings are there in six blocks of the community?
3. How many people live in each dwelling?
4. What types of dwellings are there?
   __1 family __2 family __3 family __4 family
   __apartment house __other
5. If apartment: Number of floors
   Number of apartments
   Is there a parking lot for residents?
6. What is the condition of the dwellings? Good Need Repair Bad
   What is the condition of the sidewalks? Good Need Repair Bad
7. Is there a lawn or green space nearby that residents can use?
   ___ Yes ___ No
8. What is the condition of the green space?
   Appealing Needs some work Bad
9. Approximate age of buildings _____
10. What type of materials is the building made of?
11. Where do they come from? _____
    _____
    What do animals use for housing in nature?
    Where do they get their "building materials" from?
12. Sanitation facilities: Number of garbage cans _____
    Do the cans have lids? ___Yes ___No
    Are these cans overflowing? ___Yes ___No
    Does mother nature need garbage cans? Why?
13. Litter: Amount (approximate number of pieces)
    Kinds
    Location - sidewalks, in gutters, alleys
    Is there litter in natural communities?
    What happens to it?
14. Power lines - ___Yes ___No
    Where does "power" come from for a vacant lot community?
15. Is it noisy? ___Yes ___No
    Sources: __People __Traffic __Train __Other

II. INVESTIGATION PROCEDURES

A. Population

1. Obtain a census report.
2. Extract the figures that relate only to the determined boundaries of the community.
3. Add these figures.
4. If the census is more than one year old, determine the change in numbers expressed for the last five reports. Figure out what it should be for one day you conduct this investigation.
5. Record the results according to the groups answerable to question #1.
6. By random sampling, using door-to-door or "meet the people on the street" method, ask them how long they have been here and from where they come. You might also ask them what they do.
7. Using the census, random sampling, or eyeball counting, count the number of dwelling according to question #6.
8. Chart and summarize all findings.

B. Businesses

1. Select all main streets in the community.
2. By eyeball count, walk the streets and make a count of all businesses by listing them.
3. Classify them into as many groups as deemed necessary.
4. Be sure to give locations for each one.
5. Chart and summarize your findings including the answer to question #4.

C. Schools

1. List names, locations and kinds of all schools in community.
2. Using the school directory, find the enrollment of each school, the number of teachers and the sexes of teachers and students.
3. Chart and record result.

D. Traffic Patterns

1. Map out what you feel are the main veins or streets within your community. Show all the streets branching from them.
2. In teams, station yourself at designated corners and count the vehicles that pass for a given amount of time. Then calculate the number for one hour. (There should be two teams per intersection - traffic travels in two directions.) There should be teams at the far ends of each of the streets.
3. Compare figures between the team at the main intersection and the two at the far ends. Give reasons for the differences in the figures.
4. The same procedure may be done, using the same time span, in a residential area or areas.
5. This procedure should be done in the morning, noon, and evening. All teams should determine what hour they will conduct this investigation.
6. Chart and report results.

E. Housing

1. Take a random sampling of streets, then eyeball count the number of each kind of dwelling in the community.
2. Be sure to develop a good random sampling - every third unit.
3. Chart where most of the dwellings appear to be and relate to the population density study for relationships.

OUR OWN COMMUNITY: A UNIT OUTLINE

by Don Bosworth

One of the objectives of the Metropolitan Environmental Education Resources Study was to analyze some of the constituent parts of the whole metropolitan area. In order to do this it seemed essential to have some grasp of the area as a unit, and to be confronted with its diversity and complexity. The unit outline entitled Our Own Community, by Don Bosworth provided a ready answer to the need for some systematic approach to analyze a metropolitan area. This material was secured through Dr. Lema of the Ohio State University College of Education. On the original unit outline, Bosworth includes a statement of purpose. That statement in its entirety follows.

The purpose of this unit is to thoroughly acquaint the student with the community in which they live. They accomplish this by actually creating a community of their own choice and design. They draw upon their own knowledge and experience to construct their own community.

The teacher leads the class in the selection of the name and location of the community. This selection can be accomplished through the democratic process of voting on the suggested names and locations to determine the final selection. The location is important because it will determine the community's climate and economic basis -- farming, mining, industrial, fishing, etc.

Once the name and location of the community have been selected the teacher has a choice of several methods of presentation:

1. The entire class can work together on each item of the following outline as a single project.

2. Each child can work individually on each item of the outline and thus complete a folder type project of his own.

3. Groups of students may be assigned sections of the outline and eventually put it together as a single project.

This flexibility of presentation is one advantage of this unit. Each teacher can easily adapt it to fit her class ability level. Each student can cover each item in the depth that will satisfy the needs of her students.

The following outline is to serve only as a guide. The teacher must feel free to alter it to suit her own class. It can serve as a starting point and a stimulous for teacher and student creativity.

Basic Outline for Our Own Community

I. Location

A. Use suitable democratic processes in the selection of the location of this community.
   1. Location will determine to a large extent the economic basis to support it, as well as its climate.
      a. farming, industrial, fishing, etc.

II. Name of Community

A. This is selected after the location, because the location quite frequently will have an effect on the selected name.
   1. Use suitable democratic processes for its selection.

III. Type of Community

A. This will be determined largely by its location.
   1. Students to decide generally what types of commerce will provide the economic support.
      a. specific details will be determined in other sections of the outline.

IV. Population

A. How many people are going to live in this community?
   1. The type and location will have an effect on the final decision.
   2. The final decision will also affect the economic base and the extent of public services provided by the community.

V. Geography -- will form basis for agriculture

A. Land formations
B. Climate
   1. Rainfall
   2. Temperatures
      a. seasonal high and low
C. Sources of water supply
D. Wind
   1. Direction by season
   2. Effect on temperature
   3. Effect on rainfall
E. Type of soil
   1. How can you prevent erosion?

VI. Natural Resources in or near community

A. Minerals - what kinds?
B. Timber - what kinds?
C. Wildlife - what kinds?
D. Available water
   1. Rivers, streams
   2. Lakes

3. Ocean
   a. harbor
4. How can you prevent pollution?

VII. The economic basis for its support

A. Agriculture
   1. What types?
      a. farms - grain crops?
      b. ranches - cattle, sheep, hogs, horses, etc.?
      c. orchards - fruit, nuts, berries, grapes, etc.?
   2. How many? Combinations?
   3. How many people needed? What will they do?
      a. planting?
      b. harvesting?
      c. round-up?
      d. processing plants?
      e. other?
   4. Processing plants?
      a. warehouses?
      b. packing plants?
      c. other?

B. Industrial - natural resources will affect types.
   1. What types? How many?
   2. What is the source of raw material for each?
      a. what items must be imported? (machinery, raw materials?)
   3. How many people are needed?
      a. what will they do?
   4. Where do they sell their products?
      a. in the community?
      b. where else?

C. Retail establishments
   1. What types? How many of each?
      a. why needed?
   2. How many people are needed for their operation?
      a. what do these people do?
   3. Which establishments sell the products made or grown in our community?
   4. Which establishments sell products from some other community?
      a. why?
   5. Which establishments provide some form of entertainment?
   6. Which establishments build things (construction)?

D. Transportation
   1. What types are used in our community?
      a. rail?
      b. highways and roadways?
      c. air?
      d. water?
   2. What does each type carry?
      a. passengers?
      b. types of freight and cargo?
   3. What are the advantages of each type?
   4. What are the disadvantages of each type?
   5. Why do we need each type in our community?
      a. industry's needs
      b. agriculture's needs

c. retail establishment's needs
d. personal needs

6. How many people are needed for the operation of each?
   a. what do they do?

E. Utilities and communications
   1. What types does our community have?
      a. why are they needed?
      b. what kind of special equipment does each type use?
      c. how many people are needed for their operation?
         (1) what do they do?
      d. does weather affect their operation?
         (1) how?

VIII. The government of the Community

A. What type? Mayor - council? City Manager?
   1. What are the offices of the government?
      a. mayor? clerk? accountant, etc.?
      b. councilman, etc.?
      c. dept. chiefs? fire, street, police, etc.?
   2. Where is the City Hall?
      a. why is it needed?

B. What services are provided by our Community?
   1. Police Dept.
      a. what do the police do?
         (1) why?
      b. how many people are needed?
         (1) what do they do?
      c. what special equipment do they need?
         (1) buildings?
         (2) vehicles and accessories?
         (3) communications?
   2. Fire Dept.
      a. what do the firemen do?
         (1) why?
         (2) when not at a fire?
      b. how many people are needed?
         (1) what do they do?
      c. what special equipment do they need?
         (1) buildings?
         (2) vehicles and accessories?
         (3) communications?
   3. Public Works Dept.
      a. water dept., street dept., sewer dept., refuse dept.?
         (1) what does each department do?
         (2) why?
         (3) how many people are needed for each department?
             (a) what do they do?
         (4) what special equipment does each department need?
             (a) buildings?
             (b) vehicles and accessories?
                 [1] trucks, tractors, loaders, spreaders, graders, etc.
             (c) communications?
   4. Library
      a. what kind of building?

b. what kinds of materials are in the library?
(1) books? types?
(2) magazines? types?
(3) newspapers?
(4) other?
c. how many people are needed in the library?
(1) what do they do?

5. What type of judicial systems?
a. police, municipal, etc.?
b. superior, appellate, supreme?
c. who are the officers of the court?
(1) what do they do?
d. why are courts needed?

6. Other services provided? Hospitals, zoo, park, etc.?
a. what are they?
b. why are they needed?
c. how many people are needed?

IX. The Schools of the Community

A. What kinds? Public and private?
1. How many of each?
a. pre-school?
b. elementary?
c. secondary?
2. Why are they needed?
a. each type?
3. What does the principal do? Superintendent? Staff? (should do?)
a. why?
4. What do the teachers do? (should do?)
a. why?
5. What do the student do? (should do?)
a. what do they learn at each level? (should learn?)
b. what extra curricular activities for each level?
(1) why?
6. What other people work at school?
a. what do they do?
(1) secretaries, bus drivers, custodians, etc.?

B. How can the schools be improved?
1. Buildings?
2. Personnel?
3. Curriculum?
4. Activities?

C. How do the schools obtain the money to pay for their operations?
1. Public
a. each level (taxes, tuition, etc.)
2. Private
a. each type or institution? (church, tuition, gifts, etc.)

X. The Finances of the Community?

A. How does the community government obtain the money to pay for the services it provides?
1. Taxes? What kinds?
a. people?
b. business?

c. sales tax?
2. Fees?
a. water charges or rates?
b. usage: parks, zoos, parking meters, etc.,?

B. What do banks do for the community?
1. Savings? Safety? Interest?
2. Loans? To whom? Purpose?
a. interest?
b. bonds, stocks?
3. How many people are needed?
a. what do they do?
4. What are checks?
a. why do people use them?
5. Do the banks print or make money?
a. who does?
6. What types of money does the bank accept?
a. denomination
(1) currency
(2) coins

XI. The Civic Organizations of the Community

A. What are they?
1. Why are they needed?
a. veterans?
b. community service?
c. social?
d. vocational or professional?

XII. Other Government Branch Offices in Our Community

A. Federal government
1. Post office, what does it do?
a. what kind of buildings?
(1) how many? where?
(2) what kind of special equipment is needed?
b. what kind of vehicles are needed?
c. how many people are needed?
(1) what do they do?
2. Courts, as previously identified or selected.
3. Military establishments.
a. what kind? how many?
b. what is their purpose?
(1) training? supply?
(2) maintenance or repair?
(3) medical, hospital, etc.,?
c. special equipment
(1) buildings?
(2) vehicles, aircraft, ships, etc.,?
(3) communications?
4. Other branch offices.
a. what kind?
(1) what is their purpose?
(2) how many people are needed? what do they do?

B. State government
   1. Courts as previously identified or selected.
   2. Other branch offices.
      a. what kind?
         (1) what is their purpose?
         (2) how many people are needed? what do they do?

C. County government
   1. Courts as previously identified or selected.
   2. Other branch offices.
      a. what kind?
         (1) what is their purpose?
         (2) how many people are needed? what do they do?

XIII. Activities, Sources and Materials

A. Models and related art
   1. Models of community on sand table or available area.
      a. entire community or -
         (1) industrial area
         (2) business area
         (3) airport, harbor, etc.
   2. Art work
      a. maps
         (1) physical (relief, natural resources, population, etc.)
         (2) political (streets, highways, railroads, airports, harbors, etc.)
      b. panoramic scenes
         (1) residential areas
         (2) business areas
         (3) industrial areas
         (4) recreational areas
         (5) other - zoos, parks, schools, etc.
      c. official emblems and symbols
         (1) city or community seal
         (2) city or community pennant

B. Picture assembly
   1. Cut out pictures that are suitable for illustrations.
      a. mount and caption

C. Research sources
   1. Text books
   2. Supplementary books
   3. Telephone directory (yellow pages)
   4. Chamber of Commerce information and materials
   5. Other (local papers, fiscal reports, etc.)

D. Suggested materials
   1. Sand table
   2. Construction paper and art paper
   3. Butcher paper
   4. Corrugated paper or tagboard
   5. Milk cartons
   6. Popsicle sticks
   7. Glue, paste, cement and masking or scotch tape
   8. Scissors
   9. Paints, crayons, and colored pencils or felt pens
   10. Magazines, newspapers and periodicals, etc.

11. College materials - cloth, beans, etc.
12. Folders, if desired
13. Other

E. Suggested equipment
1. Opaque projector
2. Overhead projector if an opaque is not available
3. Every available display area
a. bulletin boards
b. display tables
c. shelving

XIV. Related Activities

A. Language arts
1. Debates on local issues, for example:
a. school bonds
b. street and sewer bonds
c. new equipment
d. other
2. Essay contests to name the schools, parks, zoos, etc.
3. Essays or compositions for -
a. community history
b. local hero
c. local holiday celebrations
d. other

B. Math
1. Determining population census
a. total
b. people per square mile
c. population age -
(1) elderly
(2) other adults - men and women
(3) children
2. Area of community
a. size
(1) map scale
(2) model scale
b. number of streets and roads
(1) average width
(2) total mileage

XV. Time

A. From three to six weeks depending upon depth of involvement
B. Makes a perfect display for "Open House"

EQUIPMENT/MATERIALS LIST

have	need	
____	____	* styrofoam - 1" x 36" x 96" (cut into two (2) 24" x 48" sections, which are joined with masking tape to form a 48" x 48" model base.)
		poster board (for blocking in large natural and man made features)
____	____	green (grass and woods areas)
____	____	blue (rivers, ponds, etc.)
____	____	red
____	____	black (streets, and highways)
____	____	brown (open fields without ground cover, areas under construction.)
____	____	strings - fishing line, sewing thread, (for power lines, etc.)
____	____	dowels - 1/8" (for telephone poles, etc.)
____	____	* topographic maps (for reference purposes.)
____	____	* balsa wood or soft white pine (for making buildings.)
____	____	tooth picks
____	____	* lichen (model railroad building supply; for trees, shrubs, etc.)
____	____	very small twigs (for tree construction; to be used with lichen.)
____	____	very small stones & pebbles (for boulders, etc.)
____	____	glue
____	____	tempera paint
____	____	work tables (2, on which to locate styrofoam base and model.)
____	____	_____
____	____	_____
____	____	_____
____	____	_____
____	____	_____
____	____	_____

* available "on loan" from the outdoor education department - 888-0357


STRATEGIES 2

OBJECTIVE:

By conducting a survey of their community and building a model using the results of the survey, the students will be able to identify major natural and man-made features of their community.

INTRODUCTION:

The following procedure is based upon a five week pilot study conducted at Evening Street Elementary School in Worthington, Ohio. The sessions were held one hour per week for a total of five hours.

PROCEDURE: THE SURVEY

Period #1. The first activity was designed to get an indication of the awareness that the students had about their community. Each student was given a blank piece of paper and instructed to draw, from memory, a picture of the block where he or she lived. The picture was to include as many features as possible.

The next activity was a discussion of certain terms such as community, environment, ecology and pollution.

The final activity involved preparations for conducting the block surveys. Each student was to survey the block where he or she lived. The results were to be in the form of a drawing. The drawings would be used in periods #2, #3, and #4 as an aid for building the community model.

PROCEDURE: MAKING THE MODEL

Periods #2, #3, and #4. During these periods the students constructed a model of their community. Using simple materials such as construction paper, blocks of balsa wood, plastic lichen, toothpicks and string, they built small replicas of the natural and man-made features found in their community.

These replicas were placed on a large street map. Several students made the map by projecting an acetate slide of a street map on the wall and then tracing the image onto a large piece of paper. The map was glued to two pieces of styrofoam 2 feet by 4 feet.

The styrofoam proved to be a good base. Objects such as "toothpick telephone poles" could be stuck into it and remain secure. Also it was light and could be moved from place to place, if need be, without great difficulty.

PROCEDURE: FOLLOW-UP

Period #5. This period was used to evaluate the model that the students had built. There was discussion on how they were dependent upon their community for survival and also for maintaining a quality life. Finally, there was discussion on how today's way of life compared with the pioneer's way of life.

OBSERVATIONS:

The students were actively involved in the project. They seemed to enjoy building the small replicas of the items found in the community. It was observed that some students needed guidance in deciding how to represent certain features. The most frequent comment was "I know what I want to build but how do I build it?" The teacher would then suggest ideas how to use the construction materials to build the items.

It was also found that task assignments helped in class organization. Individual students or groups of students were given suggestions of what to work on.

Finally, it was observed that it would be more desirable to have the sessions in five consecutive days instead of spread over five weeks.

1. TOPIC a study of the community environment
2. SUGGESTED GRADE LEVEL(S) upper elementary
3. METHOD(S)/TECHNIQUE(S) surveys, mapping, model building, simulation activities, and work sheets.
4. SUBJECT AREA(S) environmental education, science, social studies, and communications skills.
5. NUMBER OF STUDENTS by homeroom or class group.
6. REFERENCE(S)

7. A-V MATERIAL(S) transparency of maps,
8. EQUIPMENT see equipment/materials list,
9. MATERIAL(S) see equipment/materials list,
10. LOCATION(S) throughout the community,
11. COMMENTS

This *Planning Page* is included for your convenience. Please use it for the detailed plans needed to carry out this unit. Some of the information which appears in the unit materials are already entered above. Additional space has been included in those planning areas where details are most likely to vary.

planning page

notes

contacts

SAMPLE STUDENT WORKBOOK 3

What's In My Own Backyard?

name _____

The cover cartoon, by Hank Ketchum, shows Dennis the Menace and his dog Ruff digging a hole in Dennis' backyard. But more than just digging a hole, Dennis is doing what kids do best - *discovering!* That's what this booklet is all about too. It's about discovering. By doing the activities in this booklet you should discover many new, and interesting things about YOUR community. (But please don't dig holes in your own backyards or in your community!)

One of the most important activities in this booklet has two parts. The first part is called a community survey. During the survey you will be asked to observe your community very carefully. Then you will be asked to make an accurate sketch map showing the locations of streets, and stores, and houses, and many other things in your community. When the survey is finished, you will use the information from it to make a model of your community. This model should help you "see" and understand your community better than you did before this activity. With the help of the model you will then be able to discuss some of the problems your community faces today. The model should also help you develop ideas about how you think your community should grow and expand in the future.

The title of this booklet is "What's In My Own Backyard?" Today your "backyard" is usually any place that is reasonably close to your home; or, any place that you can easily travel to and from. Today it would include many parts of your community such as the homes of your friends, the stores where you buy the things you need, your school, parks, and probably many other places. It is very possible, that in your life time the entire world will be your "backyard" in the very same way that your home and community are your "backyard" today.

The community (villages, town, or city) where YOU live is a very important place. As you know, you are not the only person in the community. The community is a place of great activity. Often times however, we live so close to something that we do not really see it. This may be true about your community. So - let's take a close and careful look at our community. You may be surprised at what you discover.

FIRST, will you please write down your own definition, or description, or idea of what the word "community" means to you.

NEXT, as a class, try to write down a definition, or description, or idea of what the word "community" means to ALL OF YOU (THE GROUP).

THEN, continue with activities on the following page.

MY DEFINITION: _____

_____

_____

_____

THE GROUP DEFINITION: _____

_____

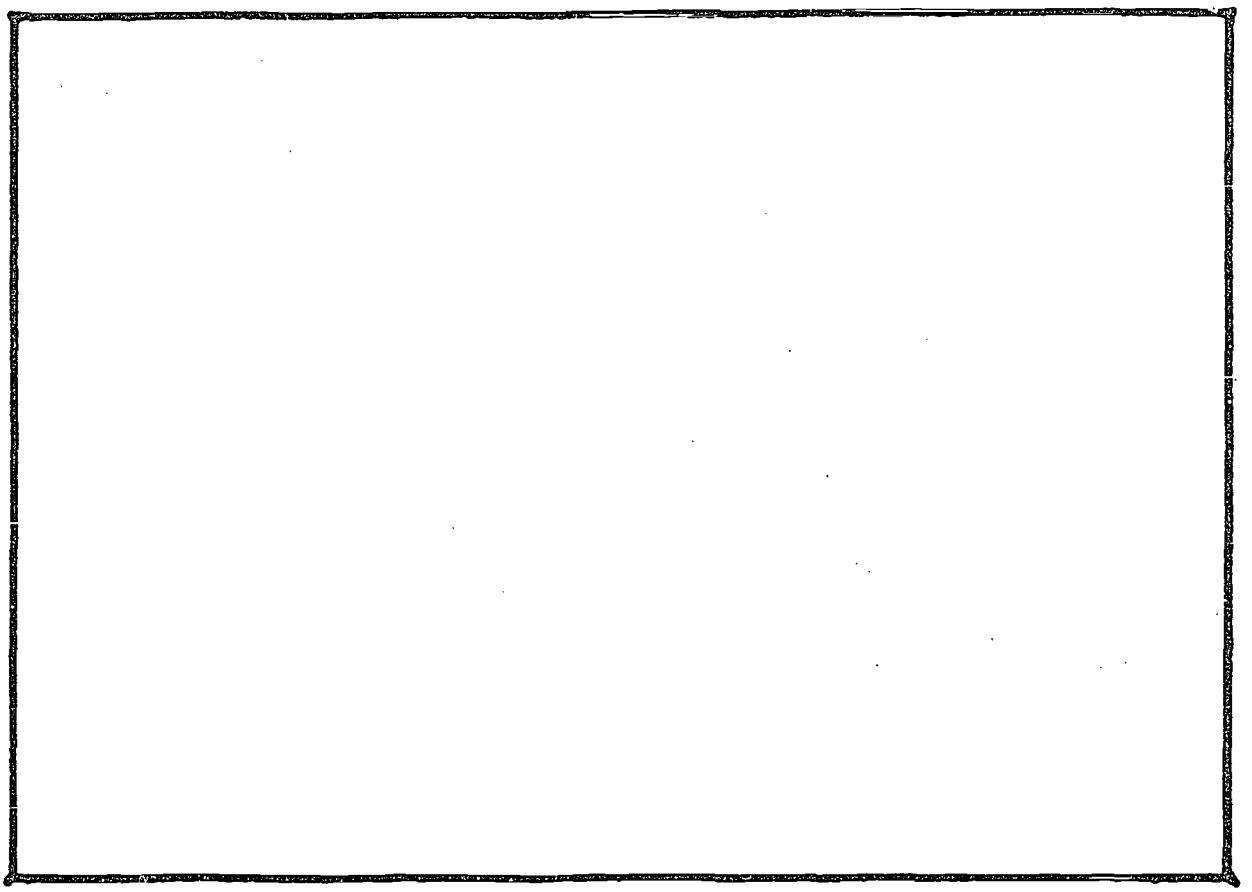
_____

_____

_____

_____

Make a bird's-eye view drawing of your ideas of a community in the space below.



Make a list of the *natural* and *man made* things in the community.

natural	man made

NOW - make any needed <u>additions</u> to your drawing.

SCHOOL DISTRICT MAP

The area map shows the attendance area for your elementary school. Please use this map any time during your survey of the community. You may want to have an overhead transparency made of this map also. With the transparency you will be able to enlarge this map on a large (48" x 48") piece of paper. The enlarged map should be taped to the styrofoam model base when you begin to make a model of your part of the community of Worthington.

COMMUNITY SURVEY*

YOUR HOMEWORK ASSIGNMENT: After your class has looked at the symbols and talked about them, add any symbols that you feel have been left out. Use page 6 to add your symbols. Now, follow the directions on pages 7 and 8 entitled "Survey Work Map." Take time to make a careful and accurate sketch map. You will need this map when you make your model of the community.

Remember, your model of YOUR community will only be as accurate as your sketch map!

Directions for mapping your block:

1. Draw in all buildings

   A. Label type of building - house, apartment

      business, etc.

   B. Include name of the building, if a commercial

      enterprise.

2. Indicate with lines, arrows, etc., the traffic lanes and direction of traffic flow.

3. Use the symbols below to locate the following objects on your map.

   Parking (along streets and buildings) P

   Street lights (not traffic lights)

   Traffic lights

   Litter or garbage can

   Mailbox

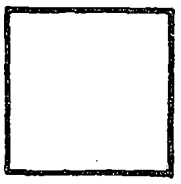
   Tree or other plant

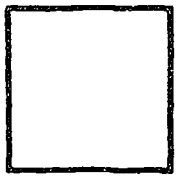
   Grass

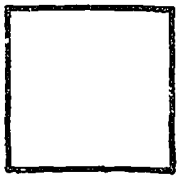
   Bus stop Ⓑ

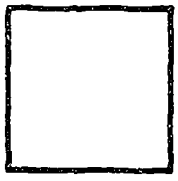
   Fire hydrant

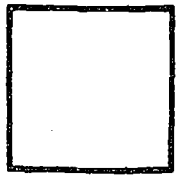
4. Next, as a class make some symbols for the following features. If you think of other features - list the name and symbol below. It is important that you agree to use the same symbols for the same features. This will help you compare and match your sketch maps later.

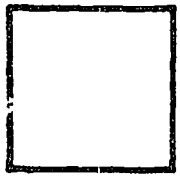
signs 

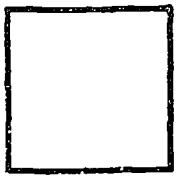
fence 

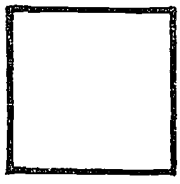
bridge 

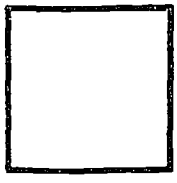
pond 

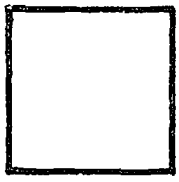
telephone pole 

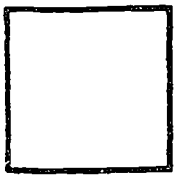
_____ 

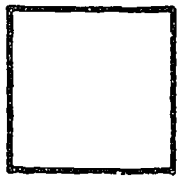
_____ 

_____ 

_____ 

_____ 

_____ 

_____ 

5. Show sidewalks, driveways, etc., in residential areas.

6. Locate any other features you observe.

* Adapted from a "Community Survey" by Robert E. Roth, PhD., Ohio State University

Survey work map

On this page entitled "Survey Work Map" - make a drawing of YOUR block. Remember the symbols on pages 5 and 6. Make a practice map on one side of this page and then use the other side for your finished sketch map.

Survey Work Map

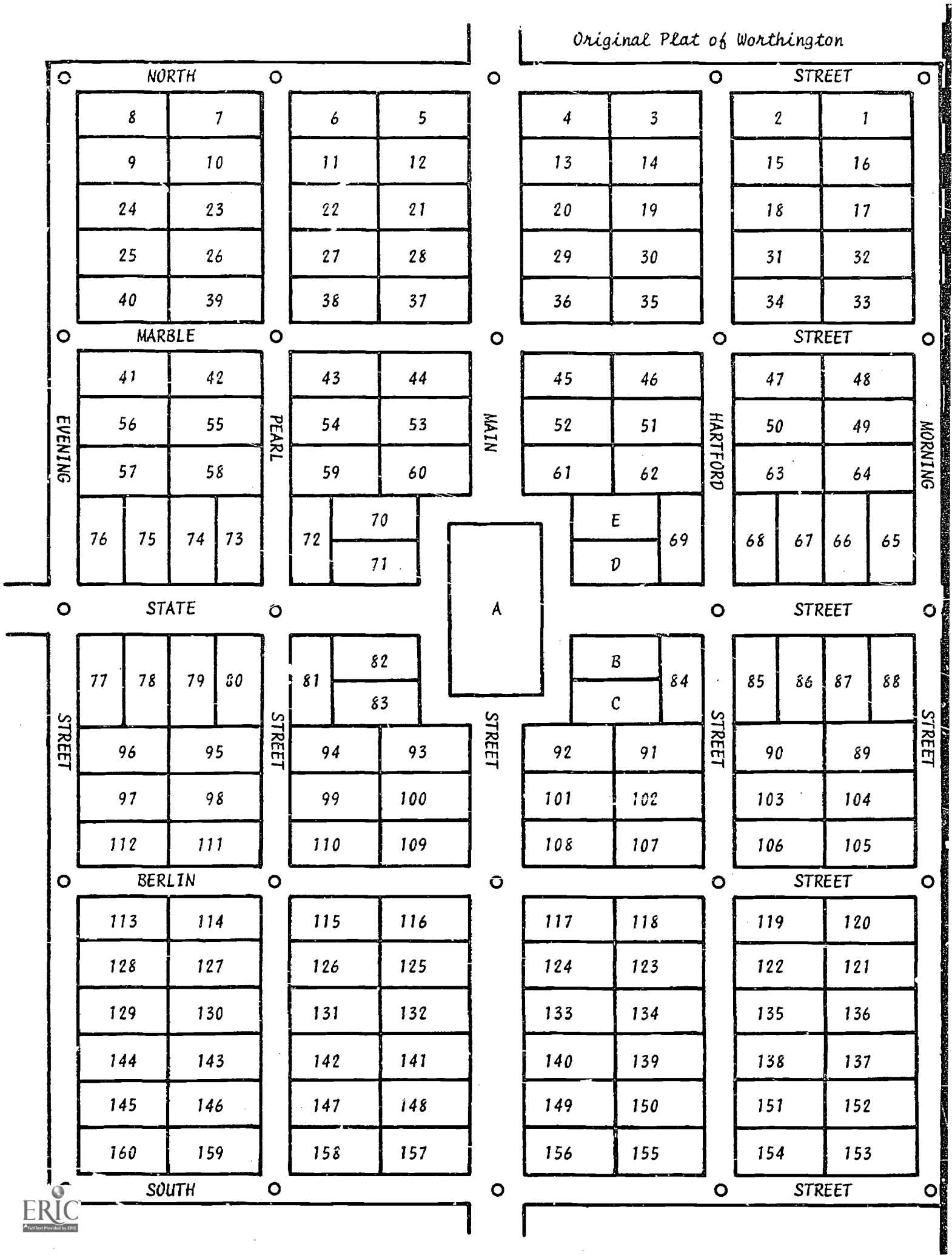
On this page entitled "Survey Work Map" - make a drawing of YOUR block. Remember the symbols on pages 5 and 6. Make a practice map on one side of this page and then use the other side for your finished sketch map.

"THE GOOD OLD DAYS"

Try to imagine your life in this community 170 years ago. Do you think your life is easier today? Is there anything in your daily way of life that you would really like to change - permanently? The list below is given for your information. It is intended to help you compare life in 1803 and life today. If you can think of other things that should be on the list please add them to the lines provided. An encyclopedia and the works by Eric Sloan may be very helpful for this activity.

	1803	197___
life expectancy		
common diseases		
medical & dental care		
water supply		
available food		
sources of heat & light		
waste disposal		
transportation		
community population		
businesses		
beginning working age		
types of work tools		
length of work day		
length of work week		
wages per week		
prices - food, clothing		
schooling (for whom; how long?)		
family size		

PAST


Original Plat of Worthington
NORTH
STREET
8
7
6
5
4
3
2
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16
24
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MARBLE
STREET
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EVENING
PEARL
MAIN
HARTFORD
MORNING
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BERLIN
STREET
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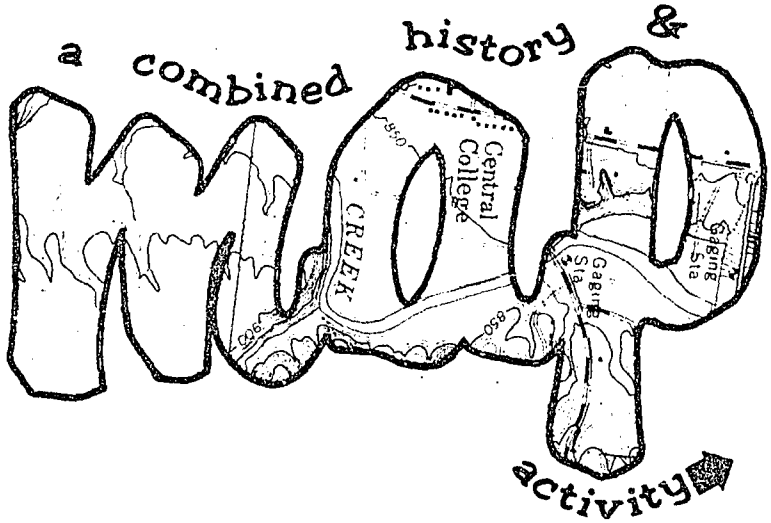
SOUTH
STREET

ORIGINAL OWNERS


a combined history &
map
activity
Central College
CREEK
950
850
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12/13

Please answer the following questions. Use the reprints entitled "An Historical Sketch of Worthington," and "The Story of the Town."

1. What was the name of the land company that founded Worthington, Ohio?

_____.

2. Who explored the area for the company? _____.

3. Why did the founders wait until 1803 to purchase the land? _____

_____

_____.

4. The Olentangy River was once called the _____ River.

5. High Street had two other names. What were they?

_____ _____

6. Granville Road, (State Route 161), also had two other names. What were they?

_____ _____

7. What was the total number of acres that was originally purchased by the founders of Worthington?

_____ acres.

8. What was the cost per acre? $_____ per acre.

9. What are the names of the streets that formed the boundary of "old" Worthington? List them below. Are they the same today?

YES _____ NO _____

_____ _____

_____ _____

10. How many lots were "platted" in "old" Worthington? _____ lots.

11. What was the size (in acres) of the "town lots?" _____ acres.

12. What was the size (in acres) of the farms? _____ acres.

13. What was the smallest acreage that could be purchased? _____ acres.

14. What was the total cost for that amount of acreage? $_____.

15. When did the first family arrive? _____.

16. What was the name of the first family to arrive? _____.

17. What did they find? _____

_____.

18. What town and state did the first Worthington settlers come from?

_____.

19. What is Franklinton called today? _____.

Please use the map entitled the "Original Plat of Worthington," and the list entitled "Original Owners." Please answer the following questions and complete the following activities.

1. Are the 100 acre areas for the school and the Episcopal Church shown on the "Original Plat of Worthington?" YES _____ NO _____.

2. Using an "X" mark the location of the building that served as the school, church, and stockade.

3. How is the village green identified on the map? _____.

4. Color the village green - GREEN (of course)!

5. What street names have been changed? What are they named today?

THEN	NOW
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

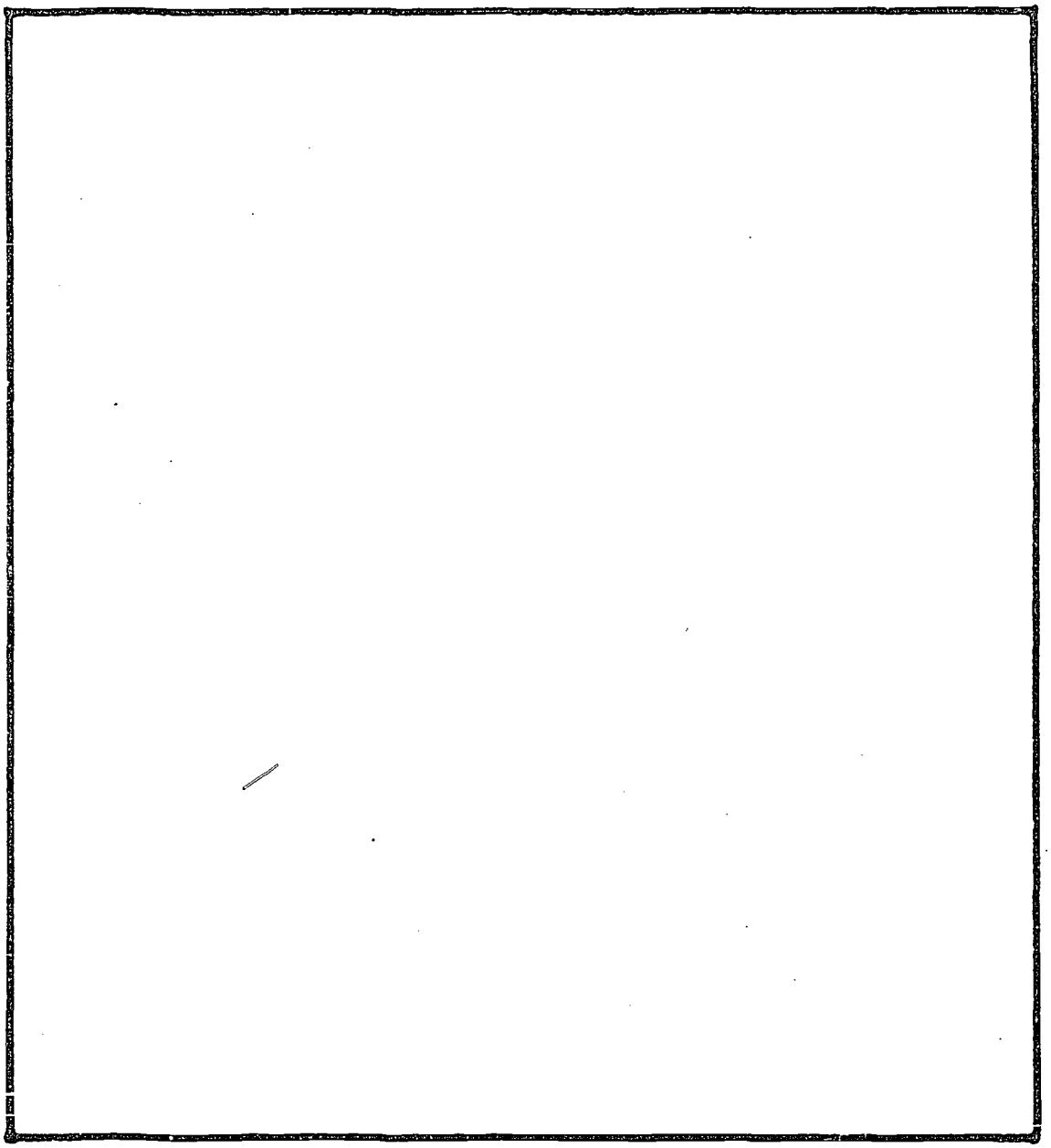
6. How many "town lots" did James Kilbourne own? _____.

7. Color James Kilbourne's "town lots" with a blue crayon.

8. How many people owned five or more"town lots?" _____.

9. Who owned the most "town lots?" _____.

10. Using the space provided below, and with the help of the map - trace the village green and town lots "B," "C," "D," and "E." Also include town lots 60, 61, 70, 71, 82, 83, 92, and 93. Correctly label the two streets on your traced map. Then, show the village green as it is today.



11. Get a Worthington area map. (Your principal might have one, or you might be able to get one from a local real estate company.) On the "Original Plat of Worthington" correctly show the location of the following streets - Clearview, Short Street and Hartford Court.

AN HISTORICAL SKETCH OF WORTHINGTON

The Village of Worthington located on the banks of the Olentangy River ten miles north of the center of Columbus is steeped in the historical and traditional lore of the Northwest Territory. James Kilbourne is the central figure in the beginning and early growth of the village. Kilbourne and his friend Nathaniel Little traveled in the spring and summer of 1802 over the section of the northwest territory to be known as Ohio from Marietta on the Ohio River through Cincinnati, Chillicothe, Circleville, Zanesville and Franklinton to the spot where our village now stands. They were impressed by the beauty of the spot and the extreme fertility of the surrounding country side. They returned in early fall to Granby, Connecticut and Kilbourne reported their findings in these words - quote - "In one place I saw one thousand acres of the best clear meadow land I ever saw in any place whatever. Plumbs and crabapples are abundant - the plumbs are very palatable, also quantities of grapevines. We found black walnut, hickory, ash, honey locust, hackberry, white-wood, etc., which never grows on any but first rate land. The only drawback is ague fever which makes it sickly to a considerable degree." Slavery was forever forbidden from what was to be the state of Ohio in November, 1802. Immediately following in December, 1802, the Scioto Land Company, a group of forty men headed by Kilbourne was organized and decided to buy this land. They bought 16,000 acres of land located in what is now Clinton and Sharon Townships as well as some in Delaware County for one dollar and twenty-five cents per acre making the total cost twenty thousand dollars. Each member paid five hundred dollars for which he received a town lot of 3/4 of an acre and a farm of 98 1/4 acres.

The Company carefully planned their village on paper before starting for their new home. They decided on two north-south roads and one east-west road. One of the north-south roads was named the Whetstone River Road after the river by the same name. It is now called the Olentangy River Road again after the same river by the same name. The other north-south road was first called the Main Road, then the Northern Turnpike and now High Street. The east-west road was called first State Road, then the Post Road, because it was to be used as a mail route from Baltimore, Maryland to St. Louis, Missouri and now is called Granville Road or Route 161. At the intersection of Main and State Roads, four village lots were set aside for the village green. The green was entirely surrounded by maple trees. There were one hundred and sixty lots platted as the village bounded on the north by North Street, the south by South Street, the east by Morning Street and the west by Evening Street. Our New England forefathers were so foresighted that they set aside one hundred acres on the north side of State Road west of Evening Street for public school purposes and one hundred acres on the south side of the same road for the use of the Episcopal Church. One of these still exists and is being used by the community for public schools.

In September, 1803, eleven families left their Connecticut homes for their new Ohio homes. The family names are recognizable in our community today. The heads of the families as well as four men unmarried were James Kilbourne, Abner P. Pinney, Adna Bristol, Wm. Thompson, Zophart Topping,

Glass Cochran, Israle P. Case, Ezra Griswold, Alexander Morrison Jr. and Levi Pinney. James Kilbourne was the leader of the group but he and his wife Lucy Fitch Kilbourne were forced to stop a week in Washington County, Pennsylvania where their sixth child, a daughter named Orrel was born. They remained only ten days in their covered wagon before starting on the road again. Ezra Griswold and his wife Ruth with their seven children arrived first at their new home on October 29, 1803. The village was officially named Worthington at a Christmas party held in the school-church building on December 26, 1803. The entire community was present. Ten toasts were given by different members of the community concerning the good things of their new home. James Kilbourne gave a toast saying - quote "The name of our town shall be called Worthington to perpetuate the name of our worthy friend and benefactor - Thomas Worthington." Thomas Worthington later became a State Senator and the Governor of Ohio.

When the eleven families arrived, twelve log cabins had been completed by advance men from Connecticut. One of these cabins, larger than the rest located on the northeast of the village green was used as the school house during the week, as a community house on week ends and as the Episcopal Church on Sundays. Episcopal services were held in this building on the first Sunday after the arrival of the settlers.

The Story of the Town

The story of Worthington begins long ago when Mound-builders lived in all the Mississippi Basin. Even up such tributaries of the Mississippi Basin as the Olentangy,* a variety of monuments of these people remain. The most important ones near Worthington are on the west side of the Olentangy River, north of Granville Road. However, the archeologist must tell their story.

History of the Indians, who inhabited what is now central Ohio, is more nearly complete. There were few permanent settlements. Members of many tribes roamed over the country, pitching their camps to stay but a few days, living as well as nature provided and then moving on to "hunt new ground." The well-defined trails over which they traveled were a boon to the early explorers. One of their canoe routes went from Canada to the mouth of the Sandusky River, up the latter to its source, over a short portage to the head-waters of the Olentangy, and thence to the Scioto and the warmer country of Kentucky. A foot trail followed this course. It was known as the Scioto Trail and from Columbus south is so called today.

The Indians of Ohio were neither better nor worse than those of other localities. Although the early settlers suffered much at their hands there is no record of Worthington ever having been attacked. There were a few scares which, when analyzed, proved more amusing than serious.

The first white men to claim the land were the Spanish, by right of conquest. Columbus, Cortez, Balboa, and De Soto planted the Spanish arms upon all the newly discovered American land. It was next claimed by the French by right of exploration and occupation. Begun by Cartier and Champlain, the establishment of forts and posts gradually extended through the Great Lakes district and south to both banks of the Ohio River. The claim of France was more substantial than that of Spain. However, at the close of the French and Indian War, all the French possessions east of the Mississippi River were ceded to England, and central Ohio became part of the colony of Virginia.

The close of the Revolutionary War found the newly established United States in a vary precarious financial condition. There was not enough money to pay off the armies. On the other hand, there was a great wealth of undeveloped territory in the West. Land grants to any soldier who would accept them seemed the best solution. Proponents of this plan were numerous, particularly in Massachusetts and Connecticut, and agitation there was largely responsible for the formation of the Northwest Territory. Following the passage of the Ordinance of 1787, the various states which before that time had claimed parts of the territory withdrew in favor of the United States.

* Originally named "Whetstone."

Colonization of the Northwest Territory started in April, 1788. In 1802 there were enough people to justify the establishment of the State of Ohio. In 1803 it formally became one of the United States.

Meanwhile, a little group of people in Connecticut were waiting cautiously, as became New Englanders, to see the constitution of this new state. Eight men had met previously at Granby, Connecticut and drawn up articles of agreement for the formulation of a land company. Membership was limited to forty, new members to be elected by a majority. Reverend James Kilbourne had explored the country for them, and all was in readiness for the purchase of some of the Military Lands of Ohio - if the constitution prohibited slavery. The Charter of Ohio met with their approval, and in 1803 the Scioto Company, as it was named, purchased from General Jonathan Dayton of New Jersey, and Doctor Jonas Stansberry of New York 16,000 acres on the Scioto Trail in what is now Sharon Township, and parts of Clinton and Delaware Townships.* Twenty thousand dollars, a dollar and a quarter an acre, was paid for the land.

The next move of the Scioto Company was to proceed to the division of this land. How carefully they went about this can best be appreciated by reading from the Abstract of Articles of Agreement of the Company.

The Scioto Company

Article IV.

In the center of the tract or as near it as is practicable and at the crossroads shall be laid out a square town plat containing 160 acres which shall be divided into 160 lots, four of which lots and those lying upon the four central corners shall be given out as a public square to remain for a green or Parade. Also there shall be one of these town lots and one farm lot for the use and benefit of a public school and one each for the use and benefit of a Protestant Episcopal Society which farm lots shall contain at least 100 acres.*****

And from the remaining lands on the three roads shall be laid out as many lots of 100 acres each including one town lot and a proportion of public lands, roads and waters, as there shall be actual settlers in the most eligible situation for home lot farms, and each settler who shall be entitled to one of said lots where these have been surveyed, out as above and the farms and town lots numbered in due order, they shall be set up as lots to be bid for, and the proprietor who bids most shall have the first choice both in the town plat and the farm lots.*****

The remaining land is to be divided to each man in proportion to his right in the remaining lands after the first set of farms are laid out.*****

* Now in Delaware County.

Article V.

Each subscriber shall in his own person or by his son make actual settlements upon the lands so purchased within two years.*****

Executed Dec. 14, 1802

Granby, Massachusetts

The settlers thus provided for school and church before any of them left New England. They planned to emigrate to a new land but to take the culture of the old with them. That they succeeded in a remarkable degree is evident when forty years later we find the center of education of the state in their village.

The site selected for the village was a dense forest. Reverend Kilbourne came first in 1803 with a small group to clear the land and lay out the roads, in order to make ready for the general settlement. They came by way of New Jersey and Pennsylvania to Shippensburg, Pennsylvania, by stage, to Pittsburgh on foot, then to Wheeling by boat, and once more on foot from there to Zanesville, and finally to Franklinton. There supplies, such as oxen and tools were purchased. Kilbourne's companions went on to the location of the village while he went south to Chillicothe and arranged to have some provisions sent up the Olentangy by boat. He then joined his companions at the site of the settlement. There he not only directed the work but also took an active part in it. During this time he kept a journal from which most of the facts of the early settlement were secured.

Reverend Kilbourne was a remarkable man: farmer, mechanic, mathematician, business man, soldier, and clergyman. Because he had been born in the parish of Worthington, Connecticut, the new settlement was named Worthington in his honor.*

Kilbourne's companions in this pioneering were Lemuel Kilbourne and family, Alexander Morrison Jr., Abner P. Pinney, Levi Pinney, Adna Bristol, E. C. Brown, and Israel P. Case. In the fall of the same year, 1803, Ezra Griswold and his family arrived, and other emigrants followed soon after.

The first winter, and the next, wheat flour had to be secured from Chillicothe. Corn meal was ground in mills to the north. Whiskey was secured by the barrel from Franklinton. But, with much game in the woods, trout in the streams, and cranberries in the marshes, food was not lacking.

* Howe's History of Ohio, Volume I, page 614. Later investigation shows that the village was named for Colonel Kilbourne's friend, Governor Thomas Worthington. Reference: Ohio State Archaeological and Historical Quarterly, Volume 52, No. 3, pp. 248-249.

The first logs felled were used to construct a building on the south college lot. This was intended for educational and religious purposes, and as a stockade if the Indians should attack. Reference is made to it in an old document as follows:

> The large cabin built for public purposes and used on Sundays as an Episcopal Church, at all public meetings was a town hall, and whenever the young people wished to have a dance or ball, that being the only room large enough for that purpose, it was used as a ballroom and this was very often, probably once in ten days.

The next houses to be erected were occupied by:

Ezra Griswold	on	lot	number	71.
William Thompson	"	"	"	70.
David Bristol	"	"	"	60.
James Kilbourn	"	"	"	61.
Samuel Beach	"	"	"	92.
Zophar Topping	"	"	"	83.
Alexander Morrison	"	"	"	82.
Nathan Stewart	"	"	"	100.
Glass Cochran	"	"	"	101.

One well was dug on the south church lot which all used in common. There was little household equipment. Many utensils were passed from one family to another, and one sieve and one large kettle served as many as three families. Even such necessities as chairs were used by several families in turn.

The first Fourth of July would have been a homesick time for the newcomers without some celebration. Ever since the War for Independence people had risen on the Fourth with the sound of cannon ringing in their ears. But there were no cannons in the new settlement. Instead, seventeen huge trees, one for each state in the Union, were partially cut through in advance. Then, on the morning of the Fourth, one by one they were chopped through and went crashing to the ground. Later in the morning speeches and a general merrymaking took place on the Village Green.

The Woodrow Guild of The First Presbyterian Church
of Worthington, Ohio
1931 (Second Edition 1953), pp. 7-13.

Think about some of YOUR community's problems TODAY. But don't stop there - think about some possible solutions too. Use the lines below to make a list of problems and your list of possible solutions. Use the remaining space below for a picture of one of the problems that you think needs immediate attention. On the space provided identify (1), the environmental problem, (2), the location, (3), the date, and (4), the time of day.

problems	solutions
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

P A S T E

Y O U R

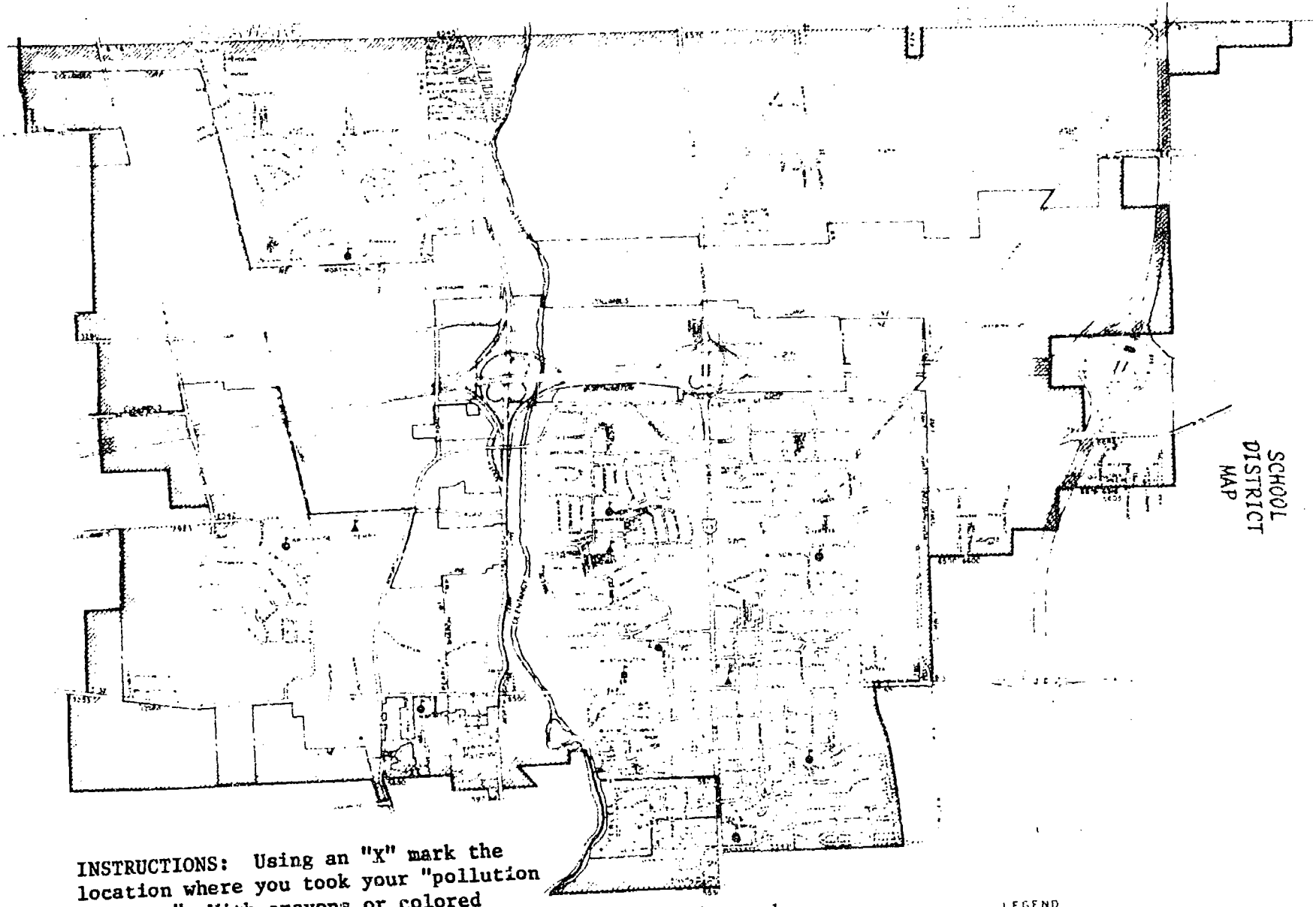
P I C T U R E

H E R E

PRESENT

ENVIRONMENTAL PROBLEM: _____

LOCATION: _____ DATE: _____ TIME OF DAY: _____ a.m. noon p.m.

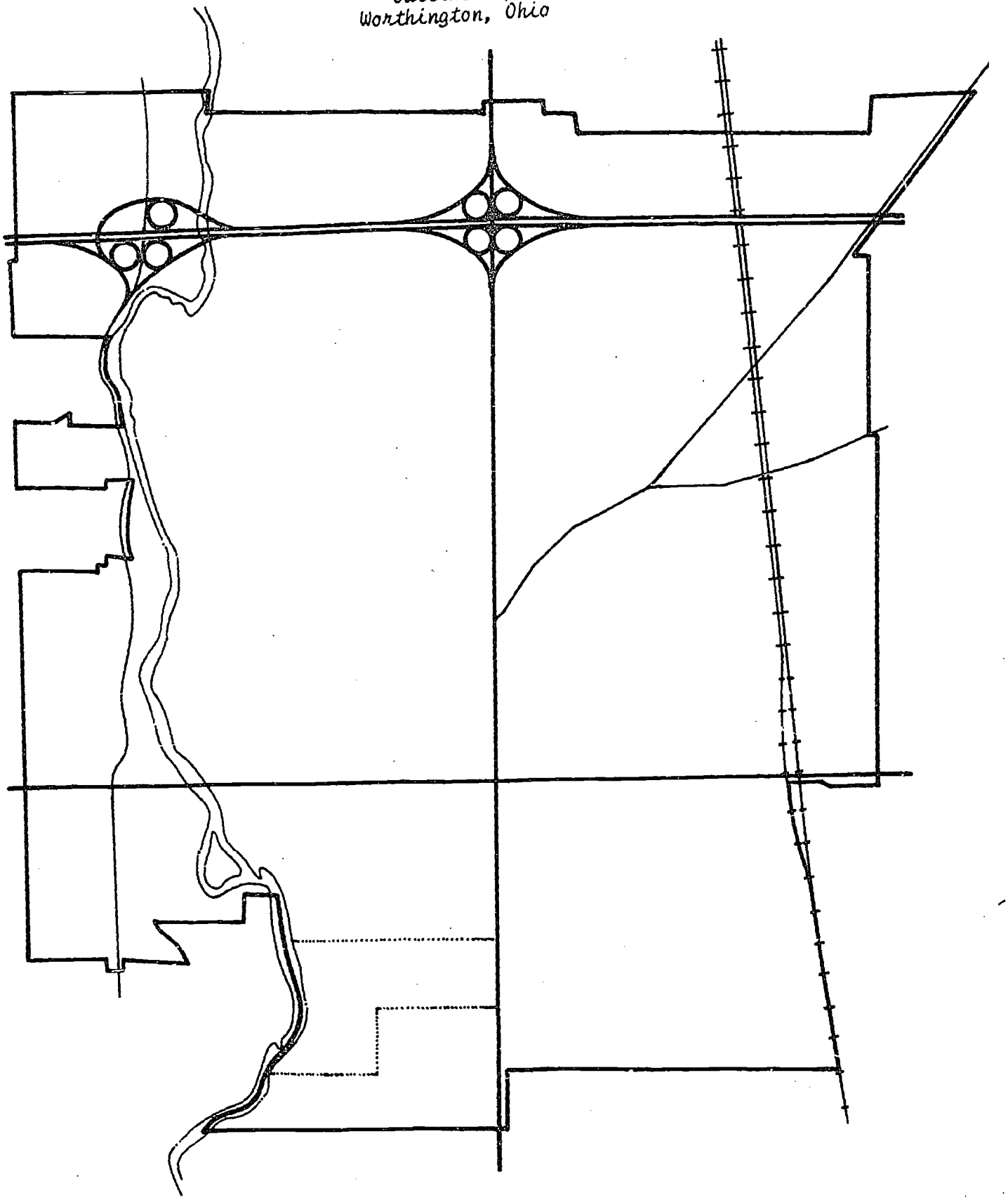


INSTRUCTIONS: Using an "X" mark the location where you took your "pollution picture." With crayons or colored pencils, indicate the many different ways that land is used. Use different colors to indicate - (1), businesses, (2), industry & manufacturing, (3), residential areas, and (4), public lands - like schools and parks.

How would you like to see the land in your community used in the future? Does it really make any difference WHAT is built in your community? If it does - does it really make a difference WHERE it is built? Who decides WHAT and WHERE? Do people in your community have a "say" in WHAT and WHERE? In the space below tell how you would like to see your community grow and expand. An outline map of Worthington, Ohio, has been included. It includes - (1), several major streets and highways, (2), the location of the Olentangy River, and (3), the location of the railroad tracks. Add any existing transportation features that you think should be included. Then show the location of (1), businesses, (2), industry and manufacturing plants, (3), residential areas (the places where people have their homes and where they live), (4), public lands, and (5), vacant land. You need not show every building. Instead, show these areas as several large sections within the community. NOW, show where you think the (1), streets and highways, (2), businesses, (3), industry and manufacturing, (4), residential areas, and (5), public lands should be located as your community grows and expands.

FUTURE

outline map:
Worthington, Ohio



activity log

These two pages are included for your convenience. Please use them to keep a record of your assignments. You may also want to use them to help you remember the words and ideas that are important to you as you do each of the activities in this booklet. If more space is needed please use notepaper.

session no. 1

notes -

session no. 2

notes -

notes -

session no. 3

notes -

session no. 4

notes -

session no. 5

ADDITIONAL READINGS 4

SIMULATIONS AND GAMES

Some beginning sources of information.

Bolton, Dale L. The Use of Simulation in Educational Administration. Columbus, Ohio: Charles E. Merrill, 1971.

Although this book is primarily concerned with educational administration, it has implications for other administrators also.

Boocock, Sarane S., and Schild, E. O. Simulation Games in Learning. Beverly Hills, California: Sage Publications, Inc.

One of the first theoretical books on simulation and games. Reviews the early work of the Coleman group at Johns Hopkins.

De Bono, Edward. New Think. New York, New York: Basic Books, Inc.

Must be one of the most readable descriptions of creative thinking available.

Gordon, Alice Kaplan. Games for Growth. Palo Alto, California: Science Research Associates, College Division.

Another good introductory book, written for the elementary and secondary teacher.

Nesbitt, William. Simulation Games for the Social Studies Classroom. New York: Foreign Policy Association.

The best book for a quick look at the field.

Inbar, Michael and Stoll, Clarice S. Simulation and Gaming in Social Science. New York: The Free Press.

One of the few books which gives a realistic description of the way games are developed.

Opie, Iona and Peter. Children's Games in Street and Playground. London: Oxford University Press, 1963.

Extremely interesting, but of little practical value - shows those games you thought you invented as a child to be centuries old.

Pfeiffer, J. William and Jones, John E. A Handbook of Structured Experiences for Human Relations Training, Volumes I, II, and III. Iowa City, Iowa: University Associates Press.

Each volume presents a series of games, exercises, and experiences designed to help people communicate more effectively, relate more sensitively, and better understand their relationships with others; a number of these can be used quite effectively to demonstrate simulation principles.

Raser, John R. Simulation and Society: An Exploration of Scientific Gaming. Boston: Allyn and Bacon, 1969.

A good general introduction to the field of simulation. Appropriate as text for a college simulation course. Not heavily oriented toward education.

Shaftel, Fannie R. and Shaftel, George. Role Playing for Social Values: Decision-making in the Social Studies. Englewood Cliffs, New Jersey: Prentice-Hall, 1967.

An excellent source book for ideas about teaching values to elementary children.

Simulation and Games: An International Journal of Theory, Design, and Research, Sage Publication, Beverly Hills, California.

A serious journal published quarterly which emphasizes theory and research in the simulation field.

Si ulation/Gaming/News. Stanford, California.

The best newsletter for keeping up on events in the educational field. Is published every other month during the school year.

Spolin, Viola. Improvisation for the Theater. Evanston, Illinois: Northwestern University Press, 1963.

Describe a series of games completely different from the simulation type. Used to teach children how to act, they also happen to be great fun for young children and uninhibited adults.

Tansey, P. J. and Unwin, Derick. Simulation and Gaming in Education. London: Methuen Educational Ltd., 1969.

Could be used as text for a college course on educational simulations.

Twelker, Paul A. Instructional Simulation Systems: An Annotated Bibliography. Corvallis, Oregon: Oregon State University Continuing Education Publications, 1969.

An excellent source of information for the researcher.

Walford, Rex. Games in Geography. London: Longmans Green, Ltd.

An excellent book of inexpensive geography games which can be built by the teacher.

Zuckerman, David W. and Horn, Robert E. The Guide to Simulation Games for Education and Training. Cambridge, Massachusetts: Information Resources, Inc., 1970.

The only complete listing of games and simulations available. Provides information on cost, number of participants, likely effectiveness, purposes, roles played, materials included, age level, playing time, etc.